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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,573	06/29/2001	James Ching Sik Lau	1928-0120P-SP	5123

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EXAMINER

LE, DANG D

ART UNIT PAPER NUMBER

2834

DATE MAILED: 11/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,573

Applicant(s)

LAU, JAMES CHING SIK

Examiner

Dang D Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Document 4-64975.

Regarding claim 6, Document 4-64975 shows a star connector for a wound rotor of a miniature electric motor comprising a base (1) of insulating resin material and a terminal ring (4) of conductive material spring-fitted (at 2) to the base and having a number of terminals (5) for connection of one end of each coil of the wound rotor.

Regarding claim 8, it is noted that Document 4-64975 also shows the terminal ring being formed from sheet material of copper or copper alloy.

Regarding claim 9, it is noted that Document 4-64975 also shows the base having at least one detent (Figure 3a) for keying the terminal ring to the base to prevent relative rotational movement therebetween.

Regarding claim 10, it is noted that Document 4-64975 also shows the base (1) being adapted to receive a shaft of the motor and to function as a spacer.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Document 4-64975 in view of Terada.

Regarding claim 7, Document 4-64975 shows all of the limitations of the claimed invention except for the base having a cylindrical portion for receiving the terminal ring and the terminal ring having a split with a free internal diameter less than the diameter of the cylindrical portion.

Terada shows the base (18) having a cylindrical portion for receiving the terminal ring (10) and the terminal ring having a split (14) with a free internal diameter less than the diameter of the cylindrical portion for the purpose of making a winding connection.

Since Document 4-64975 and Terada are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the base with a cylindrical portion for receiving the terminal ring and the terminal ring with a split with a free internal diameter less than

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the diameter of the cylindrical portion as taught by Terada for the purpose discussed above.

6. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayuki in view of Document 4-64975.

Regarding claim 1, Takayuki shows a star connected wound rotor (Figure 8) for a miniature electric motor comprising:

- A shaft (8);
- An armature core (1) fitted to the shaft and having a plurality of armature poles;
- A commutator (4) having a plurality of commutator segments for making sliding contact with a brush assembly, the commutator being fitted to the shaft adjacent a first end (left side, Figure 2) of the armature core;
- A star connector (6); and a plurality of coils (3) forming an armature winding, each coil being wound around an armature pole and being terminated on a segment of the commutator and on the star connector characterized in that the star connector comprises a base (9) of insulating material fitted to the shaft adjacent a second end of the armature core

Takayuki does not show the star connector comprising a terminal ring of conductive material spring-fitted to the base and having a number of terminals connected to the coils, thereby forming a star connected armature winding.

Document 4-64975 shows the star connector comprising a terminal ring (4) of conductive material spring-fitted (at 2) to the base and having a number of terminals (5)

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connected to the coils, thereby forming a star connected armature winding for the purpose of connecting the armature windings.

Since Takayuki and Document 4-64975 are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the star connector with a terminal ring of conductive material spring-fitted to the base and having a number of terminals connected to the coils, thereby forming a star connected armature winding as taught by Document 4-64975 for the purpose discussed above.

Regarding claim 2, it is noted that Document 4-64975 also shows the base (1) having at least one detent (Figure 3a) for keying the terminal ring to the base to prevent relative rotational movement therebetween.

Regarding claim 4, it is noted that Document 4-64975 also shows the terminal ring (4) being formed from sheet material of copper or copper alloy.

Regarding claim 5, it is noted that Document 4-64975 also shows the base (1) being molded from insulating resin material.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takayuki in view of Document 4-64975 as applied to claim 1 above, and further in view of Terada.

Regarding claim 3, the motor of Takayuki modified by Document 4-64975 shows all of the limitations of the claimed invention except for the base having a cylindrical

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portion for receiving the terminal ring and the terminal ring having a split with a free internal diameter less than the diameter of the cylindrical portion.

Terada shows the base (18) having a cylindrical portion for receiving the terminal ring (10) and the terminal ring having a split (14) with a free internal diameter less than the diameter of the cylindrical portion for the purpose of making a winding connection.

Since Takayuki, Document 4-64975 and Terada are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the base with a cylindrical portion for receiving the terminal ring and the terminal ring with a split with a free internal diameter less than the diameter of the cylindrical portion as taught by Terada for the purpose discussed above.

8. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimoyama et al. in view of Ziegler et al. and Strobl.

Regarding claim 11, Shimoyama et al. show a star connector for electrically connecting together lead wires from coils of a wound rotor of a miniature d.c. electric motor, the connector (Figure 1) comprising:

- A base (7) for direct mounting onto a shaft of the rotor; and
- A conductive ring (12) having terminals (9) for termination of the lead wires;
- Wherein the base (7) has a central boss portion with a central opening for receiving the shaft, a wall (along 4) extending radially from the boss, a skirt

extending axially from the radially outer edge of the wall (from 7 to top surface 1), and

- Wherein the conductive ring (12) has a flat ring portion (4) located against the wall of the base and supported by the skirt and having a number of terminals extending radially from the ring portion, each terminal having an axially U-shaped portion (9), the terminals extending through the openings.

Shimoyama et al. do not show the base having a number of openings in the skirt and a number of buttresses formed on the wall and the base remote from the skirt but adjacent the openings and the terminals extending through the openings in the skirt with the U-shaped portions located radially adjacent the buttresses.

Ziegler et al. show the base (24) having a number of openings (for 42a) in the skirt (Figure 2a) for the purpose of maximizing the electrical contact of the conductive ring.

Strobl shows the base (1, Figure 6) having a number of buttresses (Figure 6) formed on the wall and the base remote from the skirt but adjacent the openings and the terminals extending through the openings in the skirt with the U-shaped portions (31, Figure 6) located radially adjacent the buttresses for the purpose of strengthening the structure of the base.

Since Shimoyama et al., Ziegler et al. and Strobl are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the openings in the skirt and to add the buttresses on the wall of the base as respectively taught by Ziegler et al. and Strobl for the purposes discussed above.

Regarding claim 12, it is noted that Shimoyama et al. also show the skirt having a tapered inner surface forming a mouth (near 3).

Regarding claim 13, it is noted that Shimoyama et al. also show the skirt having a plurality of detents (with 5) for retaining the connector ring against the radial wall.

Regarding claim 14, it is noted that Shimoyama et al. also show the base (7) having a number of detents (with 8) for retaining the connector ring against the radial wall.

Information on How to Contact USPTO

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (703) 305-0156. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

DDL
October 30, 2002

